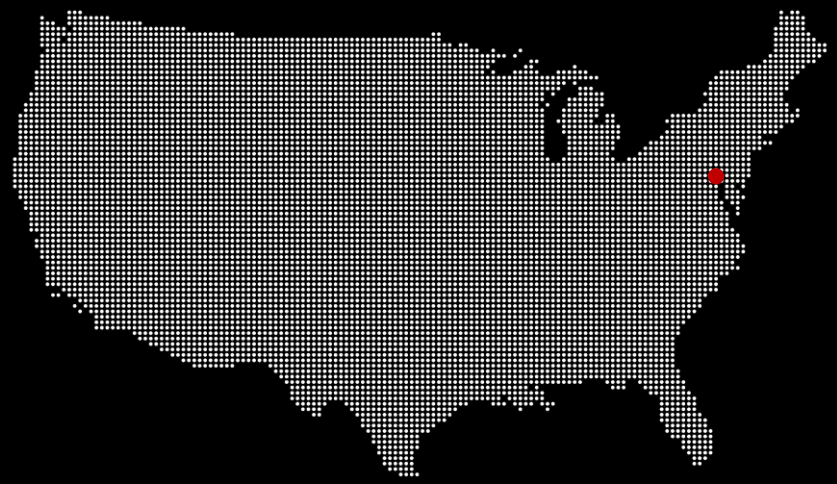
SUNTOP HOMES

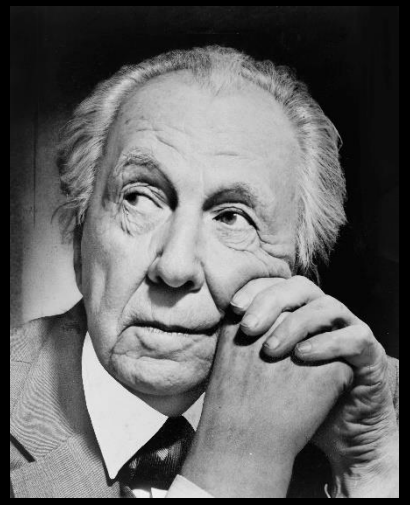
GULIAN KIERNAN | VINCENT MIN | CAITLIN PARIDY | MONICA PATEL | LEVI VANWEERDEN

GENERAL INFORMATION



Location: Ardmore, Pennsylvania

Coordinates: 39.999932, -75.292167



Architect: Frank Lloyd Wright

Typology: Entry Level Housing

Arrangement: Multiunit

Completion: 1939

Climate: Humid Subtropical / Humid Continental

UNIT SPECIFICATION

4 quadrants/individual dwellings of 2000 square ft.

Each containing a small basement, ground floor carport, utility and living rooms, dining area, master bedroom/nursery, balcony and bath; and Penthouse bedrooms and room levels.

UNIT ARRANGMENT

The units were asymmetrically arranged so that they do not look directly at one another, maximizing privacy and green space.

SITE

Situated on a flat parcel of land.

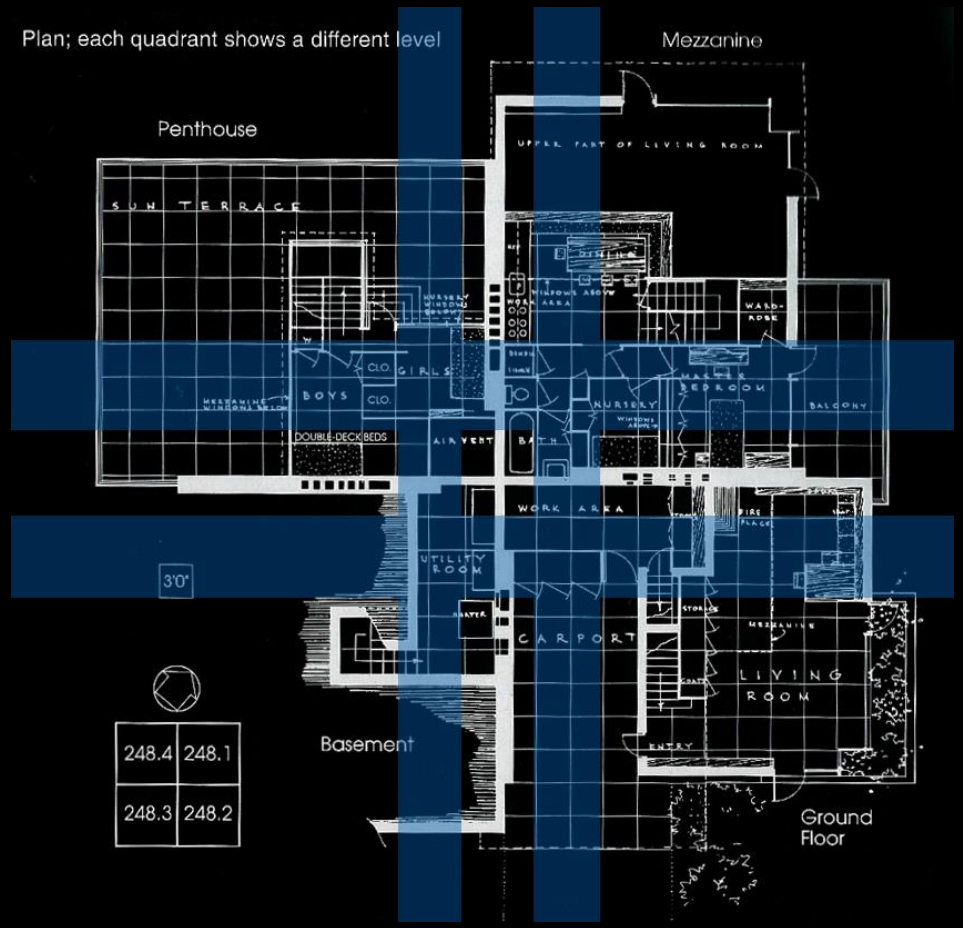
Each unit is orientated differently so that each site is completely unique.

None of them maximize the potential of the site since they are all the same.

MATERIALS

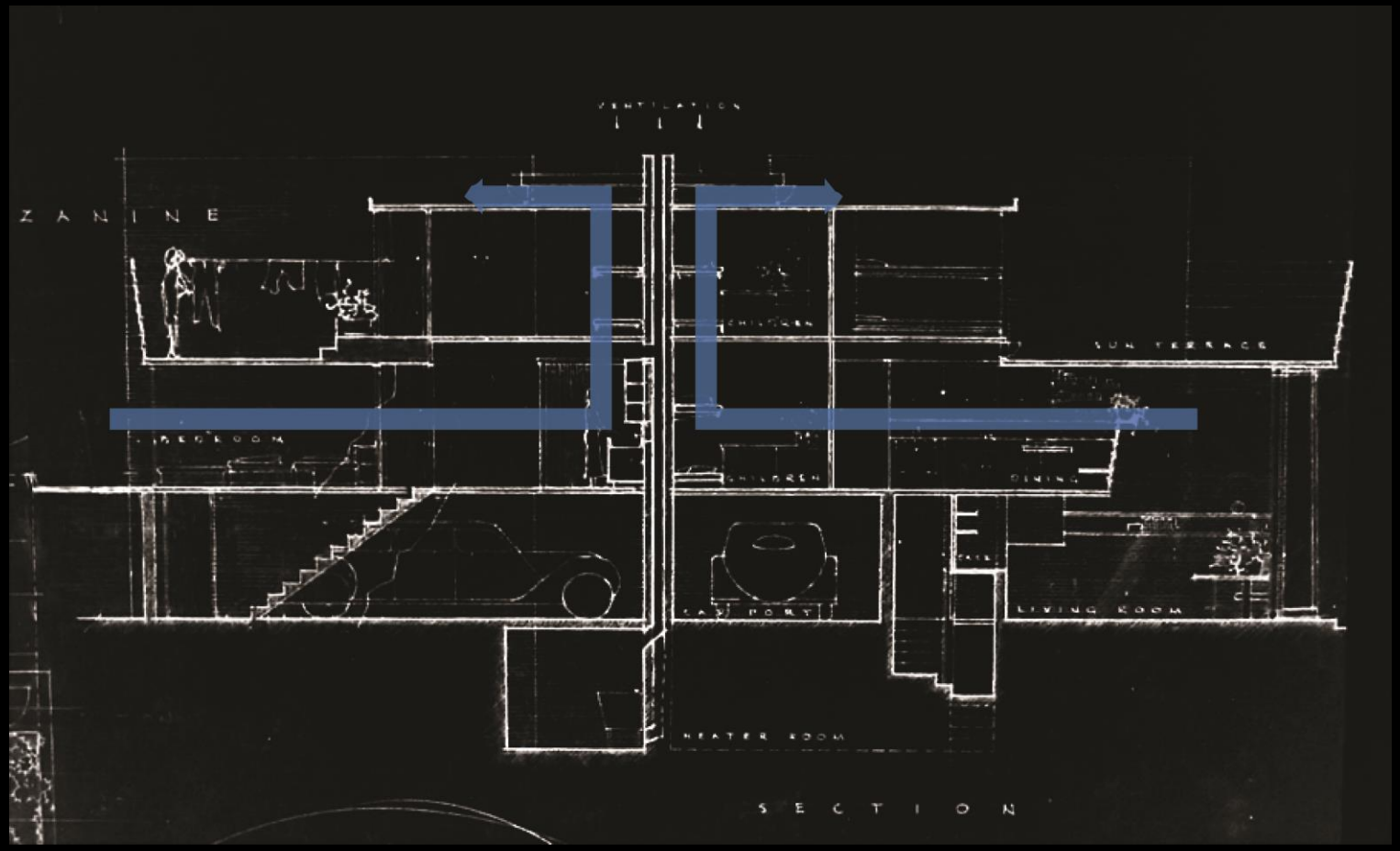
- Brick
- Concrete
- Glass
- Wood

NATURAL VENTILATION



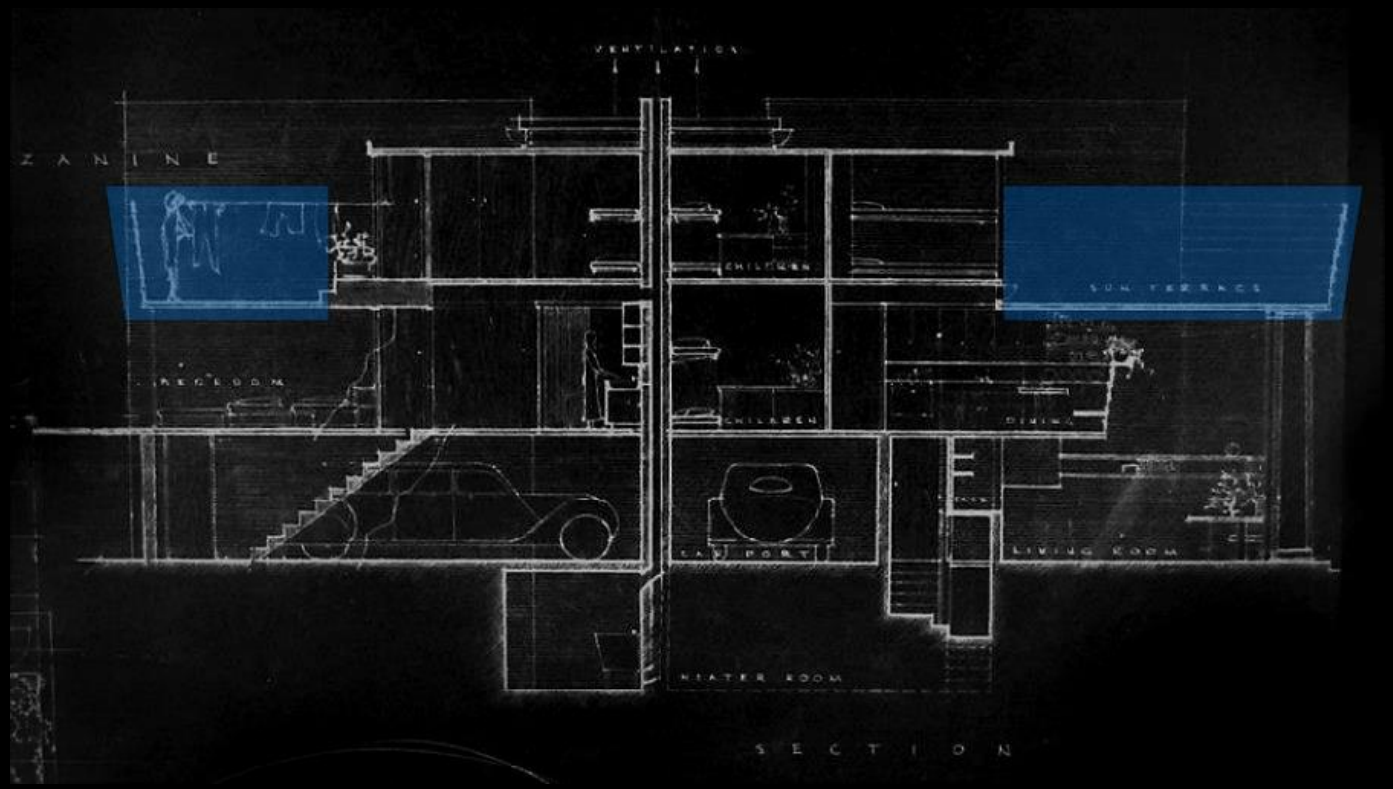
The division walls between the quadrants forms a cross pattern. To prevent the limited ventilation cause by such floor plan, the design of a cross-ventilation system in all units allows for natural ventilation.

NATURAL VENTILATION



The use of operable clerestory windows controls the ventilation to allow for heat and radiation absorbed by the brick thermal mass to escape. However, the majority of the windows are inoperable. Thus, reducing controllable natural ventilation possibilities.

TERRACE



The terrace provides shade to the living space below. It is most effective in the east, south and west units during summer mid-days.

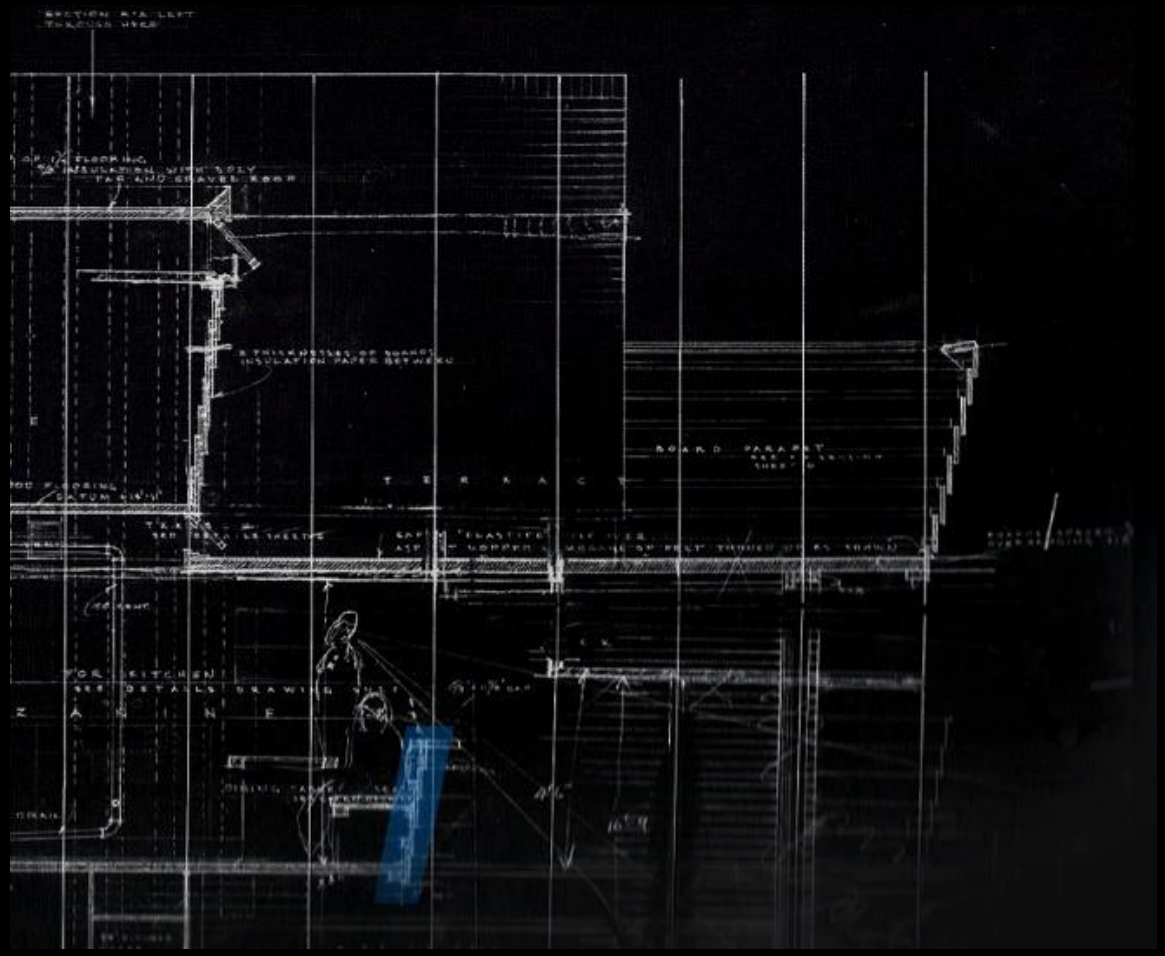
LIVING ROOM WALL

This wall provides shade for the hearth room and the kitchen. It is most effective in the east unit during the morning and the west unit in the evening.

ENTRY WALL

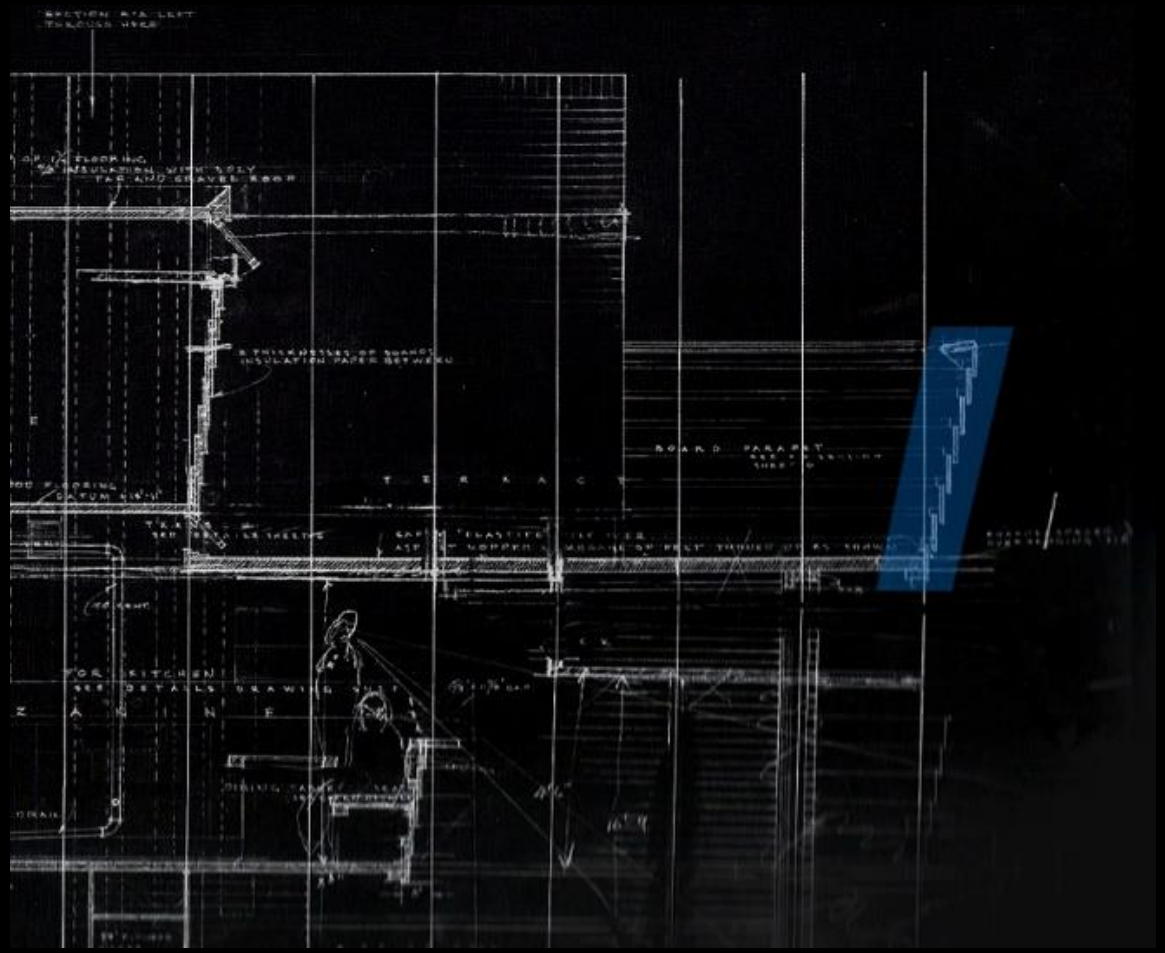
This wall shades the north unit from direct morning light and the south unit from direct evening sun.

MEZZANINE BALUSTRADE



The solid plank balustrade shades the mezzanine living space from direct morning and evening sunlight.

TERRACE BALUSTRADE



This solid plank balustrade provides shade for the roof top living space in the morning and evening.

SOLAR ACCESS

Because only one of the planned buildings was constructed, solar obstruction by surrounding buildings is not an issue.
However, had all the buildings been built, Wright ensured that they would have been adequately spread out to allow for solar access.

There is some vegetation surrounding the building which could interfere with the amount of solar access.
The units on the southern side of the building will receive more sunlight and therefore have superior solar access to the northern units.

FINAL SHOW DOWN

PROS

Cross-ventilation system allow for air to move freely between units

Thoughtfully designed solar shading devices

Blocks arranged with maximum solar access

CONS

Lack of operable windows limits ventilation possibilities

Mezzanine area lacks sunlight

Lack of northern solar access

Design overrules practicality in too many cases

IMPROVMENTS

Adjust design for the individual units to better fit their unique lighting conditions.

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